



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

October 16, 2003

William Heasom  
2505 Tirjan Ave.  
Quakertown, PA 18951-3828

SUBJECT: COBALT-60 IRRADIATOR

Dear Mr. Heasom:

This is in response to your letter regarding the CFC Logistics, Inc. cobalt-60 irradiator in Milford Township which you hand delivered to our staff. In your letter, you expressed concerns about the design of the CFC Logistics irradiator pool, particularly with regard to the seismic and hydrological reviews conducted for the facility.

Regulatory agencies must rely on engineering analyses to make informed decisions about safety and the ability of facilities to withstand certain types of accident scenarios. NRC regulations in 10 CFR Part 36, "Licenses and Radiation Safety Requirements for Irradiators," establish specific design, construction, and operational requirements for irradiator facilities. These requirements, along with the Commission's standards for protection against radiation contained in 10 CFR Part 20, provide a substantial and well-defined basis for assuring that the risks to public health and safety are very low. For example, to protect groundwater and keep the cobalt-60 from entering the environment, operation and design of the facility involves multiple containment barriers and control features. These include measures such as double encapsulation of the sources and constant monitoring for radioactive contamination in the air around the sources and in the pool water. The physical form of the cobalt itself and the robust pool structure also ensure that the risk of release of radioactive material to the environment is extremely low. In a manure storage facility, the manure is contained directly by the concrete tank, i.e., the concrete is the only barrier between the manure and the environment. In an irradiator, the concrete pool structure is only one of multiple barriers designed to assure the containment of the radioactive sources. The physical form of the cobalt sources, the source encapsulation, the structure of the plenum, and the pool water all provide some degree of barrier that is considered in evaluating the safety of the facility.

The CFC license application was reviewed against the regulations developed over many years of experience in the regulation of such facilities, incorporating the judgements of experts in many disciplines. The NRC staff's licensing review of the CFC application was extensive. Our actions included technical reviews and numerous onsite inspections by health physics, electrical engineering and geotechnical engineering experts. An internal panel also performed a peer review that focused on unique engineering aspects of the irradiator's design. During our review, we paid particular attention to the potential risks associated with the overhead trolley and hoist system which carries heavy loads over the pool. We looked at seismic risk to the facility and determined that the pool structure was sufficiently robust such that, if a heavy load was dropped, it would not damage the sources or result in loss of water for shielding. In short, we applied substantial staff and management resources to review this application to ensure that the health and safety standards contained in our regulations were met.

W. Heasom

2

We appreciate your concerns and hope this information is helpful. As a government agency, we have a responsibility to follow a well reasoned, supportable regulatory process. In the CFC case, we believe that we accomplished that objective.

Sincerely,

***Original signed by John D. Kinneman***

John D. Kinneman, Chief  
Nuclear Materials Safety Branch 2

W. Heasom

3

Distribution:  
T. Walker, RI  
RI Docket File

DOCUMENT NAME: C:\ORPCheckout\FileNET\ML032940018.wpd

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI	N				
NAME	JDKinneman/jdk		GPangburn/fmc					
DATE	10/14/2003		10/15/2003					

OFFICIAL RECORD COPY